

PATENT

Atty Docket No.: 10004808-1
Appl. Scr. No.: 09/891,324

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks. Claims 1-13 remain pending in the present application, of which Claim 1 is independent.

Applicant initially notes that the Official Action Summary incorrectly notes that Claims 1-12 are pending. As correctly noted in Applicant's Request for Reconsideration mailed November 24, 2004, Claims 1-13 remain pending in the present application, of which Claim 1 is independent. Correction of the Official Action Summary is respectfully requested.

Improper Final Rejection

As set forth in Section 706.07(a) of the MPEP,

Under present practice, second or any subsequent actions on the merits shall be final, *except where* the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). [emphasis added]

As further set forth in Section 706.07(d) of the MPEP,

If, on request by applicant for reconsideration, the primary examiner finds the final rejection to have been premature, he or she should withdraw the finality of the rejection.

Based on the guidelines set forth above in Sections 706.07(a) and 706.07(d) of the MPEP, the finality of the Official Action mailed March 8, 2005 is improper and should therefore be withdrawn. As set forth in the Official Action, the Examiner introduced several new grounds of rejection that were neither necessitated by an amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c). A summary of each new ground of rejection introduced by the

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Examiner in the Official Action mailed March 8, 2005 is set forth below. In particular, the Official Action mailed March 8, 2005 sets forth several new grounds of rejection of Claims 1-4 and 7-12 based on new interpretations of U.S. Patent No. 6,051,858 to Uchida et al. The new grounds of rejection include at least the following:

The Official Action states that Uchida et al. teaches a method comprising "forming a first electrode (32) in a first dielectric layer (34) of the multi-level metallization device (Fig. 5)." A new ground of rejection of Claims 1-4 and 7-12 in the Official Action is based on this new interpretation of the Uchida et al. reference.

The Official Action also states that Uchida et al. teaches "depositing a substantially thin dielectric material layer (34) over the first dielectric layer (34) of the multi-level metallization device." As clearly seen here, the Official Action asserts that the layer 34 constitutes both the substantially thin dielectric layer and the first dielectric layer. This assertion is in direct contrast to the previously asserted position that the layer 31 constituted a first dielectric layer. In fact, this new ground of rejection has been made even though Applicant has not amended Claim 1 of the present invention.

In addition, the Official Action states that layer 34 of Uchida et al. is formed over layer 34, that is, that layer 34 is formed over itself. This assertion also constitutes a new ground of rejection as this interpretation was not previously asserted.

Furthermore, the Official Action states that Applicant's arguments filed 11/24/04 are not persuasive "because element 34 could be divided into two layers the lower layer has a dielectric layer formed in it. The upper portion of element 34 meets the requirements of Applicant's claim language in that it lies over the lower portion of 34. Therefore Uchida anticipates Applicant's claim language." (page 6, Official Action).

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The reasons set forth above in the Official Action are improper for alleging that Uchida anticipates Applicant's claims. It is improper to base an anticipation rejection on an allegation that a feature of a reference "could be" interpreted in a particular manner. The allegation that "element 34 could be divided into two layers" is improper as a basis for making an anticipation rejection. Either Uchida et al. teaches each and every feature of Applicant's claim, or it fails to teach each and every feature. Anticipation cannot be based on what "could be" taught by the reference. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

In addition, it is improper to allege that "element 34" of Uchida et al. has an "upper portion" and a "lower portion" and to use this argument as a basis for deeming Applicant's arguments non-persuasive. Uchida et al. neither teaches nor suggests that layer 34 has an "upper portion" and a "lower portion" and thus this reasoning is improper. Moreover, this new interpretation of Uchida et al. represents a new ground of rejection.

In view of the new grounds of rejection as set forth above, further in view of the improper grounds for an anticipation rejection by the Examiner set forth above and, in addition, since Applicant was not given an opportunity to respond to the new grounds of

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rejection in the Official Action, the finality of the Official Action mailed March 8, 2005 is improper and should be withdrawn.

Summary of Telephone conference with the Examiner

Applicant telephoned the Examiner on April 12, 2005 and requested that the Examiner grant an interview to expedite prosecution of the present application. The Examiner, however, declined to grant an interview and also declined to discuss the substantive issues presented in the Official Action mailed March 8, 2005.

Claim Rejection Under 35 U.S.C. §102

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

The Official Action sets forth a new ground of rejection of Claims 1-4 and 7-12 under 35 U.S.C. § 102(b) as allegedly being anticipated by the disclosure contained in U.S. Patent

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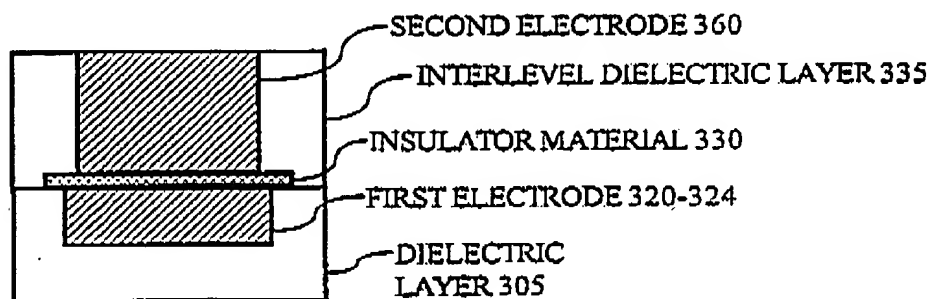
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No. 6,051,858 to Uchida et al. This rejection is respectfully traversed because Uchida does not disclose each and every element claimed in independent Claim 1 of the present invention. Uchida et al. therefore cannot anticipate independent Claim 1 and the claims that depend therefrom.

As an initial matter, the heading section of this rejection only indicates that Claims 1-4 and 7-12 are rejected, whereas the body of this section states that Claim 13 is also rejected. The Examiner is respectfully requested to correct this oversight.

Claim 1 relates to a method of forming a by-pass capacitor on a multi-level metallization device. In the method, a first electrode is formed in a first dielectric layer of the multi-level metallization device. A substantially thin insulator layer is deposited over the first dielectric layer of the multi-level metallization device. In addition, a second electrode is formed in a second dielectric layer over the substantially thin insulator layer.

The following diagram may represent the by-pass capacitor formed through implementation of the method set forth in Claim 1. It is to be understood, that the following figure is merely a representation of a possible capacitor configuration based upon the steps set forth in Claim 1. Therefore, the figure below is not intended to limit the invention in any respect but is provided to assist in illustrating the differences between the present invention and the disclosure contained in Uchida et al.



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As may be seen in the above figure, the first electrode 320-324 is formed in the dielectric layer 305 and the second electrode 360 is formed in the interlevel dielectric layer 335. An insulator material 330 is positioned between the first electrode 320-324 and the second electrode 360.

In contrast, Uchida et al. discloses a ferroelectric integrated circuit which differs from the elements set forth in Claim 1 of the present invention. The Official Action sets forth a new ground of rejection, stating that Uchida et al. teaches a method comprising "forming a first electrode (32) in a first dielectric layer (34) of the multi-level metallization device (Fig. 5)." This assertion constitutes a new ground of rejection because the Official Action mailed August 25, 2004 stated that Uchida et al. teaches a method comprising "forming a first electrode (32) in a first dielectric layer (31) of the multi-level metallization device (Fig. 5)." (page 2, August 25, 2004 Official Action).

Given that the Official Action mailed August 25, 2004 stated that layer 31 of Uchida et al. constituted "a first dielectric layer" Applicant respectfully requests clarification of the new interpretation of Uchida et al., wherein the Official Action mailed March 8, 2005 states that layer 34 of Uchida et al. constitutes "a first dielectric layer." Applicant notes that layer 31 and layer 34 of Uchida et al. are two separate and distinct layers (see, for example, Figures 4 and 5, Uchida et al.), and that layer 31 and layer 34 cannot therefore both constitute the identical "first dielectric layer."

In addition, under the previous interpretation of Uchida et al., as set forth in the August 25, 2004 Official Action, Uchida et al. fails to disclose forming a first electrode *in* a first dielectric layer, as recited in Claim 1. As shown in Figure 5, Uchida et al. discloses that the bottom electrode (32) is formed *over* the interlayer dielectric (31). In view of the new ground of rejection, wherein the Official Action mailed March 8, 2005 states that layer 34 of

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Uchida et al. constitutes "a first dielectric layer" based on the new interpretation of Uchida et al., the finality of the Official Action is improper, and therefore withdrawal of the finality of the Official Action is respectfully requested, so that Applicant is given an opportunity to respond to the rejection.

The Official Action also states that Uchida et al. teaches "depositing a substantially thin dielectric material layer (34) over the first dielectric layer (34) of the multi-level metallization device." The previous Official Action, mailed August 25, 2004, stated that Uchida et al. teaches "depositing a substantially thin dielectric material layer (34) over the first dielectric layer (31) of the multi-level metallization device." (page 2, August 25, 2004 Official Action). Applicant requests clarification of the Examiner's new interpretation of Uchida et al., since it is clear that layer 31 and layer 34 cannot both constitute the identical "first dielectric layer" of the claimed multi-level metallization device.

In addition, based on the new interpretation of Uchida et al., the new ground of rejection appears to allege that layer 34 of Uchida et al. is formed over layer 34, that is, that layer 34 is formed over itself. Applicant requests clarification of how Uchida et al. allegedly discloses "depositing a substantially thin dielectric material layer (34) over the first dielectric layer (34)" since it is unclear how layer 34 can be formed over layer 34. That is, it is unclear as to how layer 34 can allegedly be formed over itself, as alleged by the new ground of rejection. Also, based on the previous interpretation of Uchida et al. set forth in the August 25, 2004 Official Action, and in view of the new interpretation of Uchida et al. in the present Official Action, it is clear that the current rejection of Claim 1 is based on a new interpretation of Uchida et al. and thus a new ground of rejection. In view of these multiple new grounds of rejection, the finality of the Official Action is improper, and therefore withdrawal of the finality of the Official Action is respectfully requested.

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Furthermore, the Official Action states that Applicant's arguments filed 11/24/04 are not persuasive "because element 34 could be divided into two layers the lower layer has a dielectric layer formed in it. The upper portion of element 34 meets the requirements of Applicant's claim language in that it lies over the lower portion of 34. Therefore Uchida anticipates Applicant's claim language." (page 6, Official Action). That is, the Official Action asserts that the element 34 could somehow be divided into two layers to read on Claim 1. This assertion is clearly erroneous.

It is unmistakably improper to base an anticipation rejection on an allegation that a feature of a reference "could be" interpreted in a particular manner. More particularly, the allegation that "element 34 could be divided into two layers" is improper as a basis for making an anticipation rejection. Either Uchida et al. teaches each and every feature of Applicant's claim, or it fails to teach each and every feature. Anticipation cannot be based on what "could be" taught by the reference.

The Official Action also states that Uchida et al. teaches "forming a second electrode (55) in a second dielectric layer (40), wherein the second dielectric layer (40) is formed substantially over the substantially thin dielectric layer (34) (Fig. 5)." However, Uchida et al. discloses that layer 40 is a protective layer comprising a compound of one or more metals with oxygen and/or nitrogen, and not that layer 40 is a second dielectric layer (see Column 9, lines 29-44). Therefore, the integrated circuit of Uchida et al. is formed through a process that differs substantially from the elements set forth in Claim 1 of the present invention. As such, Uchida et al. fails to disclose each and every element of the claimed invention as set forth in Claim 1 and Uchida et al. thus fails to anticipate Claim 1.

In addition, the Official Action previously referred to layer 34 of Uchida et al. as "a first dielectric layer (34)" (page 2, Official Action). In view of this interpretation of layer 34

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of Uchida et al., it is unclear to Applicant how the Official Action can state that layer 34 also constitutes "a substantially thin dielectric material layer (34)." It is clear that layer 34 cannot constitute both "a first dielectric layer (34)" and "a substantially thin dielectric material layer (34)." Clarification of the rejection is respectfully requested.

Accordingly, for at least the reasons set forth above, Claim 1 is distinguishable and allowable over the disclosure contained in Uchida et al. Claims 2-13 are also allowable over Uchida et al. at least by virtue of their dependencies upon allowable Claim 1. Claims 2-13 are also allowable over Uchida et al. because these claims contain features that are not disclosed in Uchida et al.

For instance, the Official Action incorrectly asserts that column 8, lines 45-50 disclose the features of Claim 2 of the present invention. In fact, this cited section of Uchida et al. discusses a situation where a sequence of patterning steps may be omitted. Thus, this cited section does not disclose that the substantially thin insulator layer is patterned to substantially cover the first electrode and that a thickness of the substantially thin insulator layer is adjusted, as claimed in Claim 2 of the present invention.

Claim Rejection Under 35 U.S.C. §103

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both

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be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

The Official Action sets forth a rejection of Claims 5 and 6 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the disclosure contained in Uchida et al. This rejection is respectfully traversed because Uchida et al. fails to disclose the invention as set forth in independent Claim 1 of the present invention, upon which Claims 5 and 6 depend.

The Official Action correctly notes that Uchida et al. fails to explicitly teach the thickness of the thin insulator layer as claimed in Claim 5 of the present invention. However, the Official Action incorrectly concludes that the passage recited in lines 45-50 of column 14 discloses that the dielectric layer 34 is thin. Instead, this cited passage discusses that an active layer 106 is a thin film and therefore does not appear to pertain to the dielectric layer 34 cited above. Thus, the reliance on this cited passage to somehow conclude that a *prima facie* case of obviousness has been achieved is improper.

The Official Action also correctly notes that Uchida et al. fails to disclose that the dielectric constant of the substantially thin insulator layer is between 4 and 100. However, the Official Action incorrectly concludes that Claim 6 is *prima facie* obvious because there does not appear to be any indication in Uchida et al. that suggests the dielectric constant of the substantially thin insulator layer is between 4 and 100.

Even assuming for the sake of argument that the bases for concluding that Claims 5 and 6 are somehow rendered obvious by the disclosure contained in Uchida et al. is proper, the proposed justifications do not purport to render independent Claim 1 unpatentable over Uchida et al. In fact, Uchida et al. still fails to disclose all of the features of allowable Claim

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1 upon which Claims 5 and 6 depend. Accordingly, Claims 5 and 6 are allowable over Uchida et al. at least by virtue of their dependencies upon allowable Claim 1. The Examiner is, therefore, respectfully requested to withdraw the rejections of Claims 5 and 6 and to allow these claims.

Response to "Response to Arguments"

The Official Action states that Applicant's arguments filed 11/24/04 are not persuasive

"because element 34 could be divided into two layers the lower layer has a dielectric layer formed in it. The upper portion of element 34 meets the requirements of Applicant's claim language in that it lies over the lower portion of 34. Therefore Uchida anticipates Applicant's claim language." (page 6, Official Action).

Applicant respectfully notes that the reasons set forth above are improper for alleging that Uchida anticipates Applicant's claims. It is improper to base an anticipation rejection on an allegation that a feature of a reference "could be" interpreted in a particular manner. The allegation that "element 34 could be divided into two layers" is improper as a basis for making an anticipation rejection. Either Uchida et al. teaches each and every feature of Applicant's claim, or it fails to teach each and every feature. As discussed above, anticipation cannot be based on what "could be" taught by the reference. In addition, it is improper to allege that "element 34" of Uchida et al. has an "upper portion" and a "lower portion" and to use this argument as a basis for deeming Applicant's arguments non-persuasive. Uchida et al. neither teaches nor suggests that layer 34 has an "upper portion" and a "lower portion." This new interpretation of Uchida et al. represents another new ground of rejection, which further indicates that the finality of the Official Action is improper. Therefore, withdrawal of the finality of the present Official Action is respectfully requested.

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Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below.

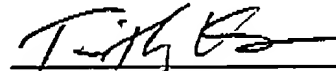
Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Osamu S. Nakagawa

Dated: May 6, 2005

By



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